



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service



Site: Medley F
Break: 3.11
Other: _____

Agency for Toxic Substances
and Disease Registry
Atlanta GA 30333

APR 14 1989

Mr. Richard Stonebraker
Chief
Emergency and Remedial Response Branch
Waste Management Division
EPA Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Jon Bonholm

Dear Mr. Stonebraker:

Enclosed are three copies of the completed Preliminary Health Assessment on the following site prepared by the South Carolina State Health Department:

Medley Farms Site

Your staff's comments on the draft document previously sent to your regional office have been taken into account in preparing this final Preliminary Health Assessment. We, very much, appreciate your cooperation in reviewing and commenting on the draft version, and we look forward to working with you and your staff in the future.

Sincerely yours,

Stephen D. Von Allmen

Stephen D. Von Allmen
Assistant Director for Health
Assessment Coordination
Office of Health Assessment



10908436

Preliminary Health Assessment

Medley Farms Site

SCD980558142

Cherokee County

Gaffney, South Carolina

August 1988

Prepared by:

South Carolina Department of Health and Environmental Control

(SCDHEC)

Columbia, South Carolina

Prepared in collaboration with:

Office of Health Assessment

Agency for Toxic Substances and Disease Registry (ATSDR)

BACKGROUND

The Medley Farms site (Medley) is proposed for inclusion on the U.S. Environmental Protection Agency's (EPA) National Priorities List (NPL). Medley is a seven-acre site located on County Road 72 (Burnt Gin Road) approximately five miles south of Gaffney in rural Cherokee County, South Carolina. A variety of chemicals from various potentially responsible parties, several of which have been identified and have signed an Administrative Order requiring them to conduct an RI/FS, were deposited on this site between 1966 and 1976, even though the South Carolina Department of Health and Environmental Control (SCDHEC) had not permitted the use of the property for disposal of hazardous materials.

The site was brought to the attention of SCDHEC by an anonymous caller in early May 1983. Approximately 5,300 55-gallon drums and 15-gallon containers were discovered during an investigation by SCDHEC staff. Some of the drums and containers were empty; however, many contained chemical residues, and many were rusted and leaking. Six on-site lagoons containing approximately 70,000 gallons of water mixed with an unknown quantity of waste materials were also discovered.

At the request of SCDHEC, EPA conducted an emergency clean-up of the site in June and July, 1983. The drums and containers were removed from the site. The lagoons were drained and backfilled; the lagoon wastes were treated prior to removal. An undetermined amount of contaminated surface soil was removed from the site. All waste materials were transported to a permitted hazardous waste disposal facility. Among the identified contaminants removed from the site were alcohols, acids, bases, industrial solvents, insoluble organic compounds such as polyesters and resins, and small quantities of polychlorinated biphenyls. In a local newspaper article (Gaffney Ledger, June 5, 1985), the property owners claimed to have been told by the potentially responsible parties that the drums and containers held non-toxic dishwashing liquid. The property owners reside about 100 feet west of the site proper.

ENVIRONMENTAL CONTAMINATION AND PHYSICAL HAZARDS

After EPA's 1983 emergency clean-up activities, on-site groundwater samples were collected in 1984 and 1986. Maximum concentrations of contaminants found in these samples were as follows: methylene chloride, 9.22 ppb; chloroform, 3.56 ppb; carbon tetrachloride, 830 ppb; 1,1-dichloroethane, 43.7 ppb; 1,2-dichloroethane, 7.53 ppb; 1,1,1-trichloroethane, 2188 ppb; 1,1,2-trichloroethane, 15.3 ppb; 1,1-dichloroethylene, 1645 ppb; trans-1,2-dichloroethylene, 28.0 ppb; trichloroethylene, 3.14 ppb.

The sampling results from off-site wells have been inconsistent. Four off-site private wells were sampled in June, 1983, when EPA's clean-up activities were in progress. Contaminants identified were methylene chloride (from 10.9 to 16.2 ppb) and total phenols (from <0.05 to 0.175 ppb). When these wells were resampled in September, 1983, no contaminants were detected. In 1984, however, methylene chloride (678 ppb) and 1,2-dichloroethane (2.51

ppb) were detected in one of the four off-site wells. No conclusions concerning the presence of off-site groundwater contamination can be made at this time without additional sampling data.

Surface soil contamination was noted during a June 1988 site visit by SCDHEC staff. A purple-colored patch of surface soil (substance unknown) approximately three feet in diameter was seen on the south side of the site. Small amounts of a resin-like substance were seen scattered across the site.

No air monitoring data are available. However, since all drums and extensive amounts of soil have been removed, the presence of air contaminants is highly unlikely.

Quality assurance and quality control data for laboratory analyses were not available for review.

No physical hazards were noted. Abandoned vehicles and appliances are located behind the property owner's residence but are not easily accessible to persons other than the residents.

POTENTIAL ENVIRONMENTAL AND HUMAN EXPOSURE PATHWAYS

Available data indicate that on-site groundwater contamination has occurred. The Medley site overlies a surficial aquifer and a much deeper bedrock aquifer. On-site groundwater contamination was confirmed in 1984 and 1986 and may have spread to neighboring private wells; since the surficial aquifer is a likely recharge source for the bedrock aquifer, contaminants may have entered both aquifers. No monitoring data are available for the bedrock aquifer. Municipal water lines have reportedly been run in the Medley area, but it is not known how many households have connected to this system or use it as their sole water supply.

In 1984, methylene chloride at 678 ppb was detected in one off-site well located less than 0.25 miles from the site. Methylene chloride is one of 83 unregulated drinking water contaminants for which EPA is scheduled to establish primary drinking water criteria at a later date. It is currently classified by the EPA Carcinogen Assessment Group as a B2 carcinogen (i.e., sufficient evidence of carcinogenicity exists in animals, but insufficient evidence exists concerning humans). The EPA Drinking Water Health Advisory for methylene chloride is 5 ppb based on a one in one million increased lifetime cancer risk; an acute one-day exposure level of 13,300 ppb was set without carcinogenic considerations.

The visible surface soil contaminants appeared well localized; it is unlikely that these substances could wash off-site due to the on-site soil composition and heavy vegetation bordering the site.

Blackberry bushes are present on-site; the potential for contamination of this food source should be considered. Use of potentially contaminated groundwater or surface water for local agricultural purposes is unknown. Game taken by area hunters may have been exposed to contaminants in soil, plants, or water.

Potential human exposure pathways may occur via ingestion, inhalation and dermal contact with contaminated groundwater. Direct dermal contact with the contaminated surface soil and incidental soil ingestion would most likely be limited to the property owners and trespassers (e.g., hunters). Contamination of blackberries, agricultural products, and game should be evaluated.

DEMOGRAPHICS AND LAND USE

The property owners live approximately 100 feet west of the site. Contaminants have been identified in samples taken from four private wells located within 0.25 miles of Medley.

On the basis of 1980 Census figures, an estimated 3,300 persons lived within a four-mile radius of the site. Approximately 300 people lived within one mile. The city of Gaffney, with a 1980 population of 13,453, is located five miles to the north. There are no signs of current population growth in the Medley area; 1986 population estimates for Cherokee County from the South Carolina Division of Research and Statistical Services vary little from the 1980 Census.

The population located within a four-mile radius was 87% white and 12% black (state percentages in 1980 were 68.8% and 30.4%, respectively). About 18% of the population were under age 10 years, while 8% were age 65 years or older (state percentages were 15.8% and 9.2%); the median age of 28.2 was approximately the same as the state median.

The area within the four-mile radius is predominantly rural in nature except for a small section on the outskirts of Gaffney. Residential housing consists almost entirely of single-family units. About 31% of owner-occupied housing units in the area were worth less than \$25,000 in 1980 (state median was \$35,100), while some 84% of renter-occupied units were under \$150 per month (state median was \$130 per month); these figures are indicative of lower-to-middle income households.

No factories or similar facilities were seen within the four-mile radius. Only a few small businesses such as service stations were observed. Two elementary schools are each located approximately two miles from the site, one to the north and one to the west. Many homes have gardens and some livestock, but there is little evidence of commercial agricultural activity. People were observed fishing in one of the nearby perennial streams and there was evidence of hunting (empty shotgun shells) near the site.

EVALUATION AND DISCUSSION

Except for the presence of limited visible contaminants on the surface soil, surface clean-up appears to have been thorough. Although site access is unrestricted, no signs of trespassing were seen. Since the site is adjacent to the property owner's house and is bordered by forest on its other three sides, it is not readily accessible to the general public. However, Medley is located in a popular hunting area where hunters could stray onto the property.

The extent of groundwater contamination, particularly for off-site wells, is unknown. Since a field investigation has not been conducted to verify whether groundwater from the area of the site discharges into the three perennial streams, the extent of surface water contamination, if any, is unknown.

CONCLUSIONS AND RECOMMENDATIONS

From the information reviewed, this site is concluded to be of potential health concern because of the possibility of human exposure to hazardous substances at concentrations which may result in adverse health effects. Human exposure to a variety of contaminants may have occurred in the past and may presently be occurring via groundwater, surface water, surface soil, and the food chain.

Because of these conclusions, the following recommendations are made:

1. All off-site wells in which contaminants were found in 1983 and 1984 should be sampled again; off-site sampling should also include any other wells in the vicinity of the site which have not previously been sampled. On-site monitoring wells should also be resampled.
2. A hydrogeological field investigation should be conducted to verify the directions of groundwater flow and to determine if groundwater contamination could have an impact on the three perennial streams. The streams should be tested for contaminants.
3. The substance causing the on-site soil discoloration and the resin-like substance should be identified. If the substances pose any hazard, they should be removed.
4. Since on-site groundwater contamination has been confirmed, contamination of edible plants such as the blackberries should be assessed. Agricultural use of groundwater in the area should be determined if off-site contamination is found. Area fishing and hunting practices should be investigated.
5. The property should be posted against hunting.